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Craig M. Lundell

Date: February 19, 2007

THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re the application of	
EMIL E. A. CRUIJSBERG ET AL	
Serial No. 10/502,434	Group Art Unit: 1764
Filed September 20, 2004	Examiner: In Suk C. Bullock
METHOD FOR THE PREPARATION OF OLEFINS BY STEAM CRACKING	February 19, 2007

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPEAL BRIEF

Applicants hereby submit this Appeal Brief in order to appeal the Final Rejection of Claims 1-6, mailed May 18, 2006. Please charge the $500.00 fee for filing this Brief to Shell Oil Company, Deposit Account No. 19-1800. A request for a three-month extension of time accompanies this Appeal Brief.

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Real Party in Interest

The real party in interest is Shell Oil Company.

Related Appeals and Interferences

To the best of the undersigned's knowledge, there are no related appeals or interferences.

Status of the Claims

Claims 1-6 were originally presented for examination as amended in a preliminary amendment filed on July 23, 2004. Claims 1-6 were finally rejected in the Office Action mailed May 18, 2006. A Notice of Appeal and a request for extension of time to file the same was filed on September 18, 2006.

Status of Amendments

All amendments have been entered. A copy of appealed Claims 1-6 appears in the Claims Appendix.

Summary of Claimed Subject Matter

The present invention is directed to a method for the preparation of lower olefins by steam cracking of heavy hydrocarbons obtained by Fischer-Tropsch synthesis in a naphtha designed steam cracking furnace. See page 1, lines 1-4. As set forth in Claim 1, the lower olefins comprise ethene, propene, and butene.

As set forth on page 1, lines 14-19 of the specification, furnaces which are designed for a petroleum derived naphtha feed cannot be used for a more heavy petroleum derived feed because such a more heavy feed will not fully evaporate in the pre-heating sections of the furnace resulting in excessive coke formation in the super heating section. A petroleum derived naphtha is defined on page 2 of the specification, lines 28-30 as the fraction starting at C_5 to a final boiling point of between 170 to 230°C. The specification goes on page 2, lines 31-35 to teach that the initial and final boiling point of naphtha are lower than the initial and final boiling point of the heavy Fischer-Tropsch hydrocarbons. This may have as an effect that the feed to the second preheating zone is not a gas but is still a mixture of gas and liquid. The heavy Fischer-Tropsch hydrocarbons are further defined on page 3, lines 14-24 in terms of their initial and final boiling points and composition.

Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed in this Appeal is whether Claims 1-6 would have been obvious under 35 USC 103(a) over Gengler et al (4,361,478) in view of Gosselink et al (5,371,308).

Argument

Applicants submit that the cited references neither alone nor together disclose the present invention and therefore, the rejection of the claims as being obvious was improper.

Gengler discloses a cracking furnace with a special preheating system. The heat-exchanger means in the convection zone is subdivided into a plurality of functionally separated heat-exchanger bundles and the feedstock is passed selectively through the bundles in accordance with the composition of the feedstock. See Abstract. In one configuration, the furnace can be used to process naphtha. However, a different configuration is used to process other types of feedstocks. For example, in column 2, lines 59-65, Gengler teaches that it is possible with changing feedstocks to switch over the sections of the heat exchanger means in bundle-wise manner and thereby vary the effective heat exchange surface to compensate for the through-puts and physical characteristics, for example, the boiling points or specific heats of changing feedstocks.

Gengler is much more complicated than a naphtha designed steam cracking furnace. The ability to change the configuration of the heat exchange surface increases the complexity and cost of such a furnace. If the configuration in Gengler were changed from the naphtha design to process a different feedstock, the design would no longer be a naphtha designed steam cracking furnace.

The present invention, on the other hand, utilizes a conventional naphtha designed steam cracking furnace to process heavy hydrocarbons with a boiling point between 150 °C and 400 °C obtained by Fischer-Tropsch synthesis without changing the configuration of the unit. These Fischer-Tropsch hydrocarbons have a higher boiling point than naphtha and it would not be expected that they could be processed in a naphtha furnace without excessive coke formation.

The Gosselink reference discloses a process for preparing lower olefins from a hydrocarbon feed wherein the hydrocarbon feed is partly made up of a hydroprocessed synthetic oil fraction such as Fischer-Tropsch products. However, it does not disclose nor suggest the use of a conventional naphtha designed steam cracking furnace to process heavy

hydrocarbons with a boiling point between 150 °C and 400 °C obtained by Fischer-Tropsch synthesis.

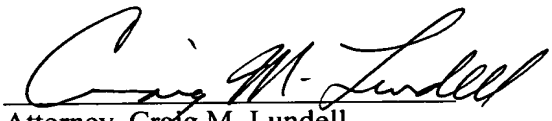
Accordingly, Gengler does not disclose a naphtha designed steam cracking furnace, although it can be configured to process naphtha. There is nothing in Gengler to suggest that a Fischer-Tropsch heavy hydrocarbon feed could be processed in the naphtha configuration. Further, there is nothing in Gosselink to suggest that heavy hydrocarbons could be processed in the naphtha configuration of Gengler.

Conclusion

Based on the foregoing arguments, Appellants assert that the claims of the present application would not have been obvious in view of the cited references. It is respectfully requested that this appeal be upheld and that the application be sent back to the Examiner for allowance.

Respectfully submitted,

EMIL E. A. CRUIJSBERG ET AL



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CLAIMS APPENDIX

1. A method for the preparation of ethene, propene and butene by steam cracking, comprising: subjecting a feed comprising heavy hydrocarbons obtained by Fischer-Tropsch synthesis, which Fischer-Tropsch hydrocarbons have an initial boiling point of above 150 °C and a final boiling point of below 400 °C, to steam cracking in a naphtha designed steam cracking furnace, wherein the furnace comprises a convection zone provided with a first preheating zone in which the Fischer-Tropsch feed is heated, a second preheating zone in which the heated Fischer-Tropsch hydrocarbons are heated in the presence of steam to form a mixture of liquid and gaseous Fischer-Tropsch hydrocarbons; and a super heating zone in which the liquid and gaseous Fischer-Tropsch hydrocarbons are super heated; and a cracking zone in which the gaseous super heated Fischer-Tropsch hydrocarbons are steam cracked into ethene, propene and butene.

2. The method of claim 1, wherein the feed for the second preheating zone comprises less than 50 wt.% liquid Fischer-Tropsch hydrocarbons.

3. The method of claim 1, wherein the weight ratio of steam to Fischer-Tropsch hydrocarbons is 0.4-0.8.

4. The method of claim 1, wherein the Fischer-Tropsch hydrocarbons comprise more than 75 wt.% paraffins.

5. The method of claim 4, wherein the paraffins have a carbon number of 10-20.

6. The method of claim 1, wherein the Fischer-Tropsch hydrocarbons are essentially free of aromatic compounds, nitrogen compounds and/or sulfur compounds.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None